Supplies

By Cherub Log

(Author's note. Lest it be argued that this article has little relevance to the history of RAN Radar, please hold judgement until you read the second half of page2.)

A French general of history is reputed to have stated that an army marches on its stomach. A similar sentiment might be attributed to the survival of technology in that unless there is a constant supply of spare parts and equipment, the technology will not survive.

Behind the front line of Radar equipment and operational personnel, during WW2 there was a constant stream of communiques dealing with many aspects of supply. Some of the originators and recipients of these communiques, which incidentlly were categorised as either Most Secret, or Secret, were C in C East India, ACNB, PMG, a certain Colonel Jones who was Controller of Radio Supplies, Ministry of Munitions, 1st Naval Member, 2nd Naval Member, 3rd Naval Member, DCNS, Department of Munitions, Naval Stores South Melbourne, DNS, C in C China, NZNB, and the Naval Officers Commanding the stations at Durban, Colombo, Fremantle, Bombay, Kilindini and Drogue. There were many more. This alone added a degree of complexity to the appropriate management of the requirement to provide a suitable infrastructure in which the maintenance personnel could work effectively.

For some of the items, the classification of Most Secret is perhaps understandable. Examples were test equipment such as Field Strength Receiver, Wavemeters, Portable dipoles and signal generators all operating at 176 Mcs and 200 to 214 Mcs. Enemy knowledge of these might have given a clue to the Allied Radar equipment. Dozens of other items on messages classified as Most Secret seem to be an over use of the Most Secret classification. Examples were Set of chisels small; 6" warding file; Set of BA dies (0-10BA); 60 watt electric soldering iron. How unauthorised knowledge of the requirement of these items could have given the enemy a tactical advantage is a mystery.

The establishment lists of spare parts for major centres such as Durban, Colombo, Fremantle read like all of Dick Smith's 21st century stores, multiplied by a factor of 10. For example, a few of the hundreds of items were valves diode 6H6 quantity 480; valve triode 6AC7 quantity 880; Capacitor 100 µµF 400 V working quantity 1,040; Resistor 1 M ohm 1 watt quantity 2,480.

The organisation of maintenance items was thorough as the following examples illustrate

a) The standard ship's set of maintenance tools, perhaps 30 items such as steel rules, engineer's hammer, hand drill, long nosed pliers and so on.

b) The list of about 50 installation consumable stores, such as empire tape, torch batteries, emery cloth, red coaxial putty, carbon tetrachloride.

c) A Most Secret letter written 2nd March 1942 by Lt Cdr G.C.F. Whittaker to the O.I.C P.M.G. Laboratories Melbourne confirms the formal order for various items such as Power Supply Alternators, Aerial Arrays, Meggers, Avometers, Beat Frequency Oscillators, Tube Testers.

d) Another Most Secret letter written 14 January 1942 by Lt Cdr Whittaker to the O.I.C., C.S.I.R Radio Physics Laboratory, on behalf of the C in C East Indies Station advises that he (Whittaker) is in Australia for the purpose of arranging supply of various major items such as 40 sets of Australian type S.W. 176 Mcs, and 200 – 214 Mcs R.D.F sets, complete with all essential ancilliary gear, 40 aerial arrays, and long lists of test equipment, spare parts and tool kits.

Of course, none of the equipment provided to whomsoever ordered it was free of charge. All had to be properly accounted for. So as well as the extensive process of inventory control, there was additionally the accounting requirement. Here are some examples taken from an account dated 11 February 1942:

a) 14 cathode ray tubes, total cost £45.7.8

b) 3914 valves various, total cost £10,972.17.5
c) 1296 batteries. Total cost £96.0.0
d) I only 18KVA 1 phase 50 cycle 220/240V 1500 rpm alternator £180.0.0
e) 4 sets of TR switching units, total cost £109.8.0

This account comprised approximately 480 line entries, and a total cost of £109,818.12.5

Some of the transport arrangements for orders for shipment from Australia to the Eastern Fleet were per the following ships in the months shown:

SS Tandra. May 1942
SS Oresles. June 1942
SS Mulbera. July 1942
SS Rajula. August 1942
SS Queda. August 1942
SS Tandra. January 1943
SS Masula. February 1943
SS Madura. February 1943
SS Melore. April 1943
SS Tandra. May 1943
SS Mulbera. July 1943
SS Malkura. October 1943
SS Querimba. February 1944

The point of this article is to provide evidence that the design of WW2 Radar equipment, and hence the maintenance practices, were vastly different from what we now experience in the 21st century. To illustrate this point by a simple and familiar example, if today our home DVD player of VCR breaks down, either the whole item is discarded in favour of a newer bigger brighter model, or for the impecunious (most of us), the faulty unit is diagnosed, removed and replaced. The new unit typically will contain the 1940s equivalent of 15 thermionic valves, 80 resistors and condensers, and 140 pieces of insulated wire, all painstakingly hand soldered together make the required electrical connections. In the1940s, if our home radio set broke down we would have taken it to a repair shop, where the failed tube (thermionic valve) was replaced, or the open circuit solder joint would be resoldered or whatever else needed to be done to allow us to continue listening to the likes of “Blue Hills” or “Dad & Dave”.

So, whereas today the maintenance engineers might need a dozen or so sub assemblies for replacement needs, and have the luxury of built-in fault finding devices and in some cases the ability to program around the faulty unit, in the 1940s the maintenance teams needed to be supplied with hundreds, perhaps thousands, of the individual components. As well they required a number of discrete items of test equipment, and the availabiliy of carefully drawn circiut diagrams to enable the failure to be isolated to in many cases, a burnt out resistor or a weakly emitting thermionic valve.

To provide the front line 1940s maintenance personnel with all the bits and pieces necessary to achieve the required high rate of fault repair, the procurement and supply infrastructure also had to be at a high level of efficiency and effectiveness. Given that the vast majority of maintenance needs were carried by very slow sea transport (no overnight helicopter or large air transport in those days), a lot of forward planning had to be done. As if this were not enough to contend with, there was also the contingency plans to be laid in the event one or more of the supply ships was sunk in enemy action.

In summary, the 1940s function of logistical inventory management of Radar associated equipment was, by comparison with today’s program, a huge and very detailled task, and played a vital prt in ensuring the Radar technicians had thelogistical support for them to do their work.